

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶: A61K 7/50	A1	(11) International Publication Number: WO 95/11004 (43) International Publication Date: 27 April 1995 (27.04.95)
(21) International Application Number: PCT/EP94/03432 (22) International Filing Date: 17 October 1994 (17.10.94) (30) Priority Data: 9303481-7 22 October 1993 (22.10.93) SE (71) Applicant (for all designated States except US): BEROL NOBEL AB [SE/SE]; S-444 85 Stenungsund (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): PERSSON, Lars [SE/SE]; Sara Moraeas väg 104, S-122 34 Enskededalen (SE). POOL, Hazel [GB/GB]; HPA, Suite 4.5 Litchurch Plaza, Litchurch Lane, Derby DE2 8AA (GB). (74) Agent: ANDERSSON, Rolf; Akzo Nobel Surface Chemistry AB, S-444 85 Stenungsund (SE).		(81) Designated States: FI, JP, NO, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>
(54) Title: A PERSONAL CARE COMPOSITION (57) Abstract The invention relates to a personal care composition in liquid or gel form for use as a shower product. The composition which contains two amphoteric compounds with hydrocarbon groups of different sizes, an ethoxylated amide and a water-soluble anionic surfactant, imparts an excellent mild and silky feel to the skin.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

A PERSONAL CARE COMPOSITION

The present invention relates to a personal care composition in liquid or gel form suitable for use as a shower product. The composition of the invention imparts an excellent skin feel.

It is desired that personal care products, like shower creams and shower gels, besides a cleaning effect, also provide a mild and silky feel to the skin both at the time of application and after the use. The products shall also provide a foam of high volume and good texture to facilitate the application of the product on the skin e.g. by a sponge.

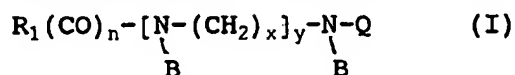
In the prior art a number of a personal care products is known. For examples, in EP-A1-523 127 and EP-A1-417 501, cleaning products for personal care are disclosed, that contain an anionic surfactant and a betaine. However, the betaines may cause irritation in the eyes and have a low contribution to a mild silky skin feel. A skin cleaning mousse-forming product is also described in EP-B1-194 097. The product contains a nonsoap surfactant such as a sulfonate, a sulfate or a betaine, and a moisturizer. In order to obtain an acceptable skin feel a specific skin feel aid is added.

One object of the present invention is to provide a mild personal care product with a smooth and silky feel at the time of application as well as after the use. Furthermore the level of foam volume shall be high. Another object is to obtain acceptable skin feel and foaming properties without the need of using amphoteric quarternized ammonium compounds, like betaines, and skin feel aids.

According to the present invention it has been found that these objects may be met by a personal care composition comprising

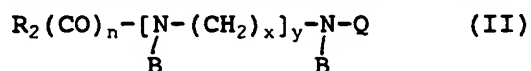
a) a combination of amphoteric compounds containing

- i) at least one amphoteric compound, which has the formula



wherein R_1 is a hydrocarbon group of from 15 to 22 carbon atoms, n is 0 or 1, x is 2 or 3, y is an integer of 0 to 4, Q is CH_2COOM or CH_2CH_2COOM , wherein M is hydrogen or an ion from the groups of alkali metals, ammonium or substituted ammonium and B is hydrogen, an hydroxyalkyl group with 2-3 carbon atoms or a group Q as defined;

- ii) at least one amphoteric compound, which has the formula

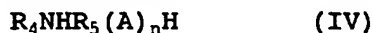


wherein R_2 is a hydrocarbon group of from 7 to 14 carbon atoms, and n , x , y , Q and B have the same meanings as in formula (I), the weight ratio between the amphoteric compounds with formula (I) and the amphoteric compounds with formula (II) being 1:3-6:1,

- b) at least one alkoxylated amide, which has the formula



wherein R_3 is an acyl group with 15-22 carbon atoms, R_5 is an alkylene oxy group with 2-4 carbon atoms, A is an alkyleneoxy group with 2-3 carbon atoms and n is a number from 0 to 6, or at least one alkoxylated amide, which has the formula



wherein R_4 is an acyl group with 7-14 carbon atoms and R_5 , A and n have the same meanings as in formula (III), or a combination thereof, and

- c) a water soluble anionic surface active agent, the amounts of component a), b) and c) being 5-50%, 5-40% and 45-90%, based on the total weight of a), b) and c) respectively, and the total amount of a), b) and c) being 1-100%

based on the total weight of the composition. Preferably, the component a) is 10-35%, component b) 10-25% and component c) 50-80% by weight based on the total amount of a), b) and c). The weight ratio between component a) and component c) is suitably from 2:3 to 1:8 and the weight ratio between component b) and component c) is from 1:2 to 1:8. In a preferred embodiment the composition contain at least one alkoxyated amide with the formula (III) and at least one alkoxyated amide with the formula (IV), the weight ratio between the compounds with formula III and the compounds with formula (IV) being from 1:6 to 6:1. By combining the compounds of the present composition in the specified amount stated above, it is possible to obtain synergistic properties which make the composition extremely suitable to be used in personal care products, such as shower gels and shower creams.

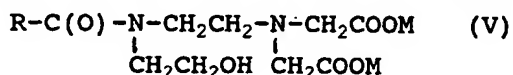
A blend of these surfactants enables the manufacture of shower products with outstanding performance, especially with regard to after-use skin feel. It is the surfactants alone which are responsible for the skin feel and there is no need to add polymeric material or other emollients in order to achieve an exceptional after-use feel.

Besides the anionic surfactant, the amphoteric compounds with the formulae (I) and (II) also contribute to the cleaning effect of the composition. In addition, the compounds with formula (I) promote the feel of foam and the after-use feel, while compounds with formula (II) generally promote foaming. The alkoxyated amides of formula (IV) increases the volume of foam, while the compounds of formula (III) have a thickening effect in combination with an improved after-use feel and a creamy texture of the foam. Furthermore, any expected toxic effects or skin irritaitons due to the presence of the anionic surfactant are essentially lowered depending on the substantial

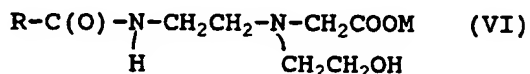
amounts of amphoteric compounds and alkoxyated amides in the composition.

In the formulae (I) and (II), R_1 and R_2 are preferably aliphatic groups, R_1 containing 16-20, mainly 18 carbon atoms and R_2 10-14, mainly 12 carbon atoms. The groups R_1 and R_2 can be both unsaturated and saturated and suitably they are derived from rapeseed oil and coconut oil.

One class of preferred ampholytic compounds with formulae (I) and (II) are those where x is 3, n is 0, y is 2-3 and B is the group Q . Another class of suitable amphoteric compounds with formulae (I) and (II) are those where n is 1, and each B independently of each other hydrogen, a hydroxyalkyl group with 2-3 carbon atoms or the Q group with the proviso that at least one of the B groups is the hydroxyalkyl group. Examples of such compounds are those with the formulae

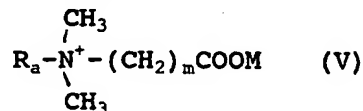


and



where M has the same meaning as mentioned above and R is R_1 or R_2 , where R_1 and R_2 have the same meanings as mentioned above.

In addition to the amphoteric surfactants of formulae (I) and (II) the composition may also contain other types of amphoteric compounds as well as zwitterionic compounds like betaines. Examples of suitable zwitterionic compounds are those with the formula



wherein R_a is a hydrocarbyl chain of 7-21 carbon atoms and preferably is an alkyl or alkenyl radical of from 11 to 17 carbon atoms; m is 1 or 2; M is preferably H or sodium ion.

Preferred alkoxylated amides with the formulae (III) and (IV) are those, where n is a number from 0 to 4, most preferably from 2-3, and R₃ is an acyl group with 16-20, mainly 18 carbon atoms and R₄ is an acyl group with 10-14, mainly 12 carbon atoms. Preferably at least 50 % of all A groups are the ethyleneoxy group, and most preferably both R₅ and A are ethyleneoxy groups. The R₃ and R₄ groups are suitably derived from rapeseed oil and coconut oil.

Anionic surfactants suitable for inclusion in the compositions are those generally used in personal care products and include alkylsulfates, ethoxylated alkyl sulfates, alkyl polyglucoside sulfates, fatty acid polyglyceride sulfates, fatty acylamido polyoxyethylene sulfate, alkyl glyceryl ether sulfonates, methyl acyl taurates, fatty acyl glycinate, N-acyl glutamates, acyl isethionates, alkyl sulfosuccinates, alpha-sulfonated fatty acids, their salts and/or their esters, alkyl phosphate esters, ethoxylated alkyl phosphate esters, acyl sarcosinates and fatty acid/protein condensates, and mixtures thereof. The alkyl and/or acyl groups for these surfactants contain 8-22, preferably 10-18 carbon atoms.

Preferred from the viewpoint of optimum characteristics for shower products are the sulfate compounds, especially the salts of sulfuric acid esters of the reaction product of 1 mole of a higher fatty alcohol with 10-18 carbon atoms and from about 1 to about 5 moles of ethylene oxide, with sodium, ammonium or magnesium being the preferred counterions. Particularly preferred are the alkyl ether sulfates containing from about 2 to 4 moles of ethylene oxide, such as sodium lauryl dioxyethylene sulfate, sodium lauryl trioxyethylene sulfate.

In addition to the above components the composition of the invention may also contain normally used components, such as preservatives, pearlescent agents, opacifiers, colourants and fragrance. Preservatives may e.g. include Euxyl K 100

(Schülke and Mayr), benzyl alcohol, metylchloroisothiazolinone and methylisothiazolinone. The pearlescent agent may e.g. be Empicol XP40 (Albright & Wilson). Opacifiers may suitably be polymeric substances, such as copolymers of vinyl pyrrolidone and styrene. The colourants may e.g. include FDC Yellow and FDC Orange 4.

The pH of the composition should be within a range of 4.5 to 7.0, and preferably 5.5. A pH adjusting agent can be used, such as an organic acid, e.g. citric or lactic acid, or an inorganic acid, e.g. hydrochloric acid.

The invention is further illustrated by means of the following examples.

Example 1

A number of compositions were prepared from an anionic surfactant, amphoteric surfactants and amide etoxylates. The compounds used are as set forth in the following table.

Table 1

Compound nr	Chemical structure
A	Formula I, where R_1 is a C_{16-18} aliphatic group, x and y is 3, n is 0, and B and Q are C_2H_4COONa
B	Formula II, where R_2 is a C_{12-14} aliphatic group, x is 3, y is 2, n is 0, and B and Q are C_2H_4COONa
C	Formula III, where R_3 is a C_{16-18} aliphatic group; $R_5=A=C_2H_4O$; and $n=2$
D	Formula IV, where R_4 is an C_{12-14} aliphatic group; $R_5=A=C_2H_4O$; and $n=2$
E	Lauryl di(oxyethylene)sulphate

By using these surfactant A-E the following compositions were formulated.

Table 2

Formulation	Ingredient	% by weight
1	B	3
	C	2
	E	15
2	A	3
	C	2
	E	15
3	A	1.5
	B	1.5
	C	2
	E	15
4	B	3
	D	4
	E	15
5	A	3
	D	3
	E	15
6	A	1.5
	B	1.5
	D	3
	E	15
7	A	1.5
	B	1.5
	C	2
	D	3
	E	15

The seven formulations were evaluated with regard to volume of foam, feel of foam on application and the after-use feel of skin. These parameters were in accordance with scales from 0 to 100 having the following meanings.

Volume of foam

0 = None

100 = Copious

Feel of foam

0 = Unacceptable

100 = Extremely rich

After-use feel

0 = Unacceptable

100 = Excellent

The assessments were carried out on the forearms, which were prewashed with mild Palmolive soap, and wetted with warm water, before applying the test formulations.

A quantity of 0.5 g of the formulations was transferred to the arm, and the arm was then rubbed five times initially, and then up to a further twenty times. Each time the volume of foam and the feel of the foam on the skin were recorded.

The arms were then rinsed with warm water and dried using a clean towel. The after-feel was recorded after five minutes. The following results were obtained.

Formulation	Foam Volume	Feel of foam	After-use feel
1	67.5	67.5	82.5
2	67.5	67.5	82.5
3	70	72.5	82.5
4	67.5	67.5	72.5
5	70	72.5	77.5
6	75	72.5	77.5
7	75	72.5	85

From the results it is evident that formulation 3, 6 and 7 in accordance with the invention exhibits advantageous and synergistic effects in comparison with the formulations 1, 2, 4 and 5.

Example 2

A shower cream composition based on formulation 7 was compared with three shower products on the commercial market

10

with regard to the volume of foam, feel of foam and after-use feel.

The composition of the shower cream was as follows.

Components	% by weight
A	1.5
B	1.5
C	2.0
D	3.0
E	15
Vinyl pyrrolidone/styren copolymer (Antara 430)	1.5
Propylenglycol	2.0
Preservative (Euxyl K 100)	0.1
Perfume (Frequent K/25952)	0.3
Water	up to 100 %

The pH-value of the shower cream was adjusted to 5.3 by adding citric acid. After this addition the shower cream had an viscosity of 16 000 cps.

The following results were obtained.

Product	Foam Volume	Feel of foam	After-use feel
Shower cream of the invention	75	72.5	85
Comparison 1	75	70	82.5
Comparison 2	70	70	67.5
Comparison 3	75	75	80

From the results it is evident that the shower cream product in accordance with the invention gives an exceptional after-use feel without the need of vegetable oils or synthetic emollient materials.

Example 3

The following formulations were prepared.

Components	Formulation, % by weight		
	8	9	10
A	-	1.5	1.5
A'	1.5	-	-
B	1.5	1.5	-
B'	-	-	1.5
C	2.0	-	2.0
C'	-	2.0	-
D	3.0	-	3.0
D'	-	3.0	-
E	15.0	15.0	15.0

A' = Formula (I), where $R_1(\text{CO})_n = \text{C}_{16-18}$ acyl group; $x=2$; $y=3$;

B=Q=CH₂COONa

B' = Mixture of Formula (V) and (VII), where $R(\text{CO}) = \text{C}_{12-14}$ acyl

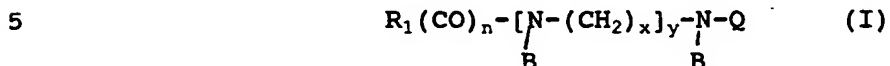
C' = Formula (III), where $R_3 = \text{C}_{16-18}$ aliphatic group; $R_5 = \text{C}_2\text{H}_4\text{O}$;
A=C₂H₄O; and $n=3$

D' = Formula (III), where $R_3 = \text{C}_{12-14}$ aliphatic group; $R_5 = \text{C}_2\text{H}_4\text{O}$;
and $n=0$

Compounds A, B, C, D and E were the same as in Example 1. The formulations 8, 9 and 10 were then tested in the same manner as in Example 1. The same results as for formulation 7 in Example 1 were obtained, but with the exception that Feel of Foam for formulations 8 and 9 was 75. The formulation 9 had also a slightly higher viscosity than formulations 7, 8 and 10.

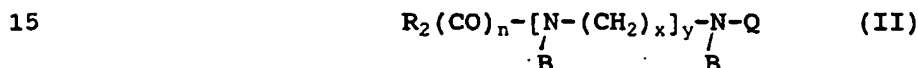
CLAIMS

1. A personal care composition comprising
- a) a combination of amphoteric compounds containing
- i) at least one amphoteric compound, which has the formula



wherein R_1 is a hydrocarbon group of from 15 to 22 carbon atoms, n is 0 or 1, x is 2 or 3, y is an integer of 0 to 4, Q is CH_2COOM or CH_2CH_2COOM , wherein M is hydrogen or an ion from the groups of alkali metals, ammonium or substituted ammonium and B is hydrogen, an hydroxyalkyl group with 2-3 carbon atoms or a group Q as defined;

- ii) at least one amphoteric compound, which has the formula



wherein R_2 is a hydrocarbon group of from 7 to 14 carbon atoms, and n , x , y , Q and B have the same meanings as in formula (I), the weight ratio between the amphoteric compounds with formula (I) and the amphoteric compounds with formula (II) being 1:3-6:1,

- b) at least one alkoxylated amide, which has the formula



wherein R_3 is an acyl group with 15-22 carbon atoms, R_5 is an alkylene oxy group with 2-4 carbon atoms, A is an alkyleneoxy group with 2-3 carbon atoms and n is a number from 0 to 6, or at least one alkoxylated amide, which has the formula



wherein R_4 is an acyl group with 7-14 carbon atoms and R_5 , A and n have the same meanings as in formula (III), or a combination thereof, and

c) a water soluble anionic surface active agent,
the amounts of component a), b) and c) being 5-50%, 5-40% and
45-90%, based on the total amount of a), b) and c) respec-
tively, and the total amount of a), b) and c) being 1-100%
5 based on the total amount of the composition.

2. A composition in accordance with claim 1, characterized
in that in formulae (I) and (II) R_1 is an aliphatic group with
16-20 carbon atoms and R_2 is an aliphatic group with 10-14
carbon atoms.

10 3. A composition in accordance with claim 2, characterized
in that n is 1.

4. A composition in accordance with claim 1 or 2,
characterized in that x is 3, n is 0 and B is the group Q.

15 5. A composition in accordance with any one of claims 1-4,
characterized in that it contains at least one compound with
the formula (III) and at least one compound with the formula
(IV) in a weight ratio of 1:6 to 6:1.

20 6. A composition in accordance with any one of claims 1-5,
characterized in that in formulae (III) and (IV) R_3 is an ali-
phatic group with 16-20 carbon atoms and R_4 is an aliphatic
group with 10-14 carbon atoms.

7. A composition in accordance with claim 6, characterized
in that R_5 and A are ethyleneoxy groups.

25 8. A composition in accordance with any one of claims 1-7,
characterized in that the anionic surfactant is a sulphate or
sulphonate.

9. A composition in accordance with claim 8, characterized
in that the anionic surfactant is a salt of sulfuric ester of
the reaction product of 1 mole of a fatty alcohol and from 1 to
30 5 moles of ethylene oxide.

10. A composition in accordance with any one of claims 1-9, characterized in that the component a) is 10-35 %, component b) 10-25 %, and component c) 50-80 %, based on the total weight of components a), b), and c).

- 5 11. Use of a composition in accordance with any one of claims 1-10 in the formulation of a shower product.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 94/03432

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61K7/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO,A,92 04882 (THE PROCTER & GAMBLE COMPANY) 2 April 1992 see the whole document ---	1-11
A	EP,A,0 127 580 (CIBA-GEIGY AG) 5 December 1984 see the whole document ---	1-11
A	EP,A,0 160 507 (E. G. FISHLOCK-LOMAX) 6 November 1985 see the whole document -----	1-11

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

20 January 1995

Date of mailing of the international search report

31.01.95

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Sierra Gonzalez, M

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/EP 94/03432

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO-A-9204882	02-04-92	AU-A-	8730291	15-04-92
		CN-A-	1060782	06-05-92
		CZ-A-	9300453	16-02-94
		EP-A-	0548265	30-06-93
		HU-A-	64206	28-12-93
		JP-T-	6501011	27-01-94

EP-A-0127580	05-12-84	JP-A-	59227994	21-12-84

EP-A-0160507	06-11-85	AU-B-	581431	23-02-89
		AU-A-	4169085	31-10-85
		CA-A-	1261275	26-09-89
		US-A-	4946136	07-08-90
